SINTESIS DAN KARAKTERISASI NANO KARBON AMPAS TEH (*Camellia sinensis* L.) DITINJAU DARI KADAR DAN RASIO ASAM ORTO-FOSFAT

SYNTHESIS AND CHARACTERIZATION OF NANO CARBON TEA WASTE (Camellia sinensis L.) VIEWED FROM THE CONTENT AND RATIO OF ORTHOPHOSPHORIC ACID

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ABSTRACT

Waste of tea is still limited in terms of utilization, potentially to be made into nanocarbon. In this research, nanocarbon synthesis from the waste of tea through carbonation method using furnace and purification with HNO_3 with activator substance used is H_3PO_4. The specific objective of this study was to determine the optimal levels and ratios of orthophosphoric acid and to determine the properties and characteristics of nanocarbon from tea waste. Based on the Fourier-Transform Infra-Red (FT-IR) spectra, the best ortho-phosphate acid levels and ratios are 50% and 1:2 (w/w) H_3PO_4. The X-ray diffraction (XRD) analysis showed that the activated carbon dregs obtained were C graphite which was characterized by the diffraction peak at 2theta: 26.2°; 26.5°; 42.2°; 42.4°; and 44.3°. Based on the Transmission Electron Microscope (TEM) image obtained shows that the activated carbon of the resulting tea waste has a particle size of 20-40 nm.

***Keywords**: Activated carbon, nanocarbon, ortho-phosphoric acid, tea waste*